

REMARKS

Claims 19-22, 24-25 and 27 are active. Chitosan derivatives of component A find support on page 10, lines 2 *ff.* of the specification; support for the component C (the organic compound) is found on page 14, line 10-page 15, line 3. Chitosan acid salts are disclosed on page 10, lines 9-18. Accordingly, the Applicants do not believe that any new matter has been added.

Rejection—35 U.S.C. §112, first paragraph

Claim 31 was rejected under 35 U.S.C. 112, first paragraph. This rejection is moot in view of the cancellation of Claim 31.

Rejection—35 U.S.C. §112, first paragraph

Claims 19-23, 25-34 and 36-39 were rejected under 35 U.S.C. 112, first paragraph as lacking enablement for a composition which does not contain a carboxyl-containing molecule. This rejection is moot in view of the amendment of Claim 19 to refer to component (C), an organic compound.

Rejection—35 U.S.C. §112, second paragraph

Claim 20 was rejected under 35 U.S.C. 112, second paragraph, as indefinite. This rejection is moot in view of the amendment above.

Rejection—35 U.S.C. §102

Claims 19-20, 22-23, 25, 27-30, 33-34, 36, and 38-39 were rejected under 35 U.S.C. 102(b) as being anticipated by Sugama et al., J. Materials Sci. 34:2003. Sugama, abstract and page 2004, first col. “Experimental”, refers to acetylated chitosan (CS) polymers dissolved in

hydrochloric acid (HCl) mixed with starch-derived dextrine containing Ce nitrate. However, it does not disclose the combination of components A, B and C of the present claims. Accordingly, this rejection may now be withdrawn.

Rejection—35 U.S.C. §102

Claims 29-31 and 33 were rejected under 35 U.S.C. 102(b) as being anticipated by Hon et al., J. Appl. Polym. Sci. 77:2246. Hon, abstract and page 2247, col. 1 “Synthesis of ONCMCh Chelates” describes O,N-carboxymethyl chitosan (ONCMCh) and zinc sulfate chelates in deionized water, optionally dispersed in ethyl alcohol. However, it does not disclose the combination of components A, B and C required by the present claims and thus cannot anticipate the invention. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

Rejection—35 U.S.C. §102

Claims 19, 21, 23-24, 29-30, 32 and 34 were rejected under 35 U.S.C. 102(b) as being anticipated by Boston et al., U.S. Patent No. 5,348,799. Col. 5, lines 20 *ff.* describe chitosan, alkylated or not, mixed with an acid to form an aqueous soluble salt. This salt is mixed with an inorganic metal oxide solution (col. 5, lines 30 *ff.*) maintained at a pH less than 4.0. This solution may then be applied to a substrate and dried (col. 5, lines 44 *ff.*). However, Boston does not disclose or permit one to immediately envisage a composition comprising components A, B and C of the invention.

Rejection—35 U.S.C. §103

Claims 26 and 37 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sugama et al., J. Materials Sci. 34:2003. This rejection may be withdrawn for the reasons set

forth above regarding Sugama which does not disclose all the elements of the invention or provide any motivation for making the combination of components A, B and C of the invention.

Rejection—35 U.S.C. §103

Claims 20, 25-26 and 36-37 were rejected under 35 U.S.C. 103(a) as being unpatentable over Boston et al., U.S. Patent No. 5,348,799. This rejection is moot in view of the amendments above and in view of the superior three-dimensional crosslinking in films provided by mixing the ingredients required by the invention.

Boston does not disclose or suggest the combination of components A, B and C or the invention. While Boston describes mixing an aqueous soluble chitosan acid salt with an inorganic metal oxide, it does not specifically suggest a coating mixture with component C: an organic tribasic, tetrabasic or pentabasic acid. For example, Examples 1-5 of Boston all titrate to low pH using concentrated nitric acid. While Example 3 refers to portions of other acids, such as inorganic phosphoric acid, it indicates that phosphoric acid acts as a monoprotic acid (col. 8, lines 52-53).

A tribasic acid is capable of neutralizing three molecules of a monacid base or has three hydrogen atoms capable of replacement by basic elements on radicals. Similarly, tetrabasic and pentabasic acid neutralize four or five molecules of a monacid base or have four or five hydrogen atoms available for replacement by basic elements. Thus, such acids have superior crosslinkability as disclosed on page 15, lines 1-3 of the specification.

Boston does not disclose, specifically suggest or provide a reasonable expectation of success for the combination of A, B and C of the invention which includes tri, tetra and pentabasic acids. The ingredients required by the present invention result in greatly improved three dimensional crosslinking when applied as a film to a metal substrate. The prior art

neither suggests this nor provides a reasonable expectation of success for this property of the invention. Accordingly, the Applicants respectfully submit that this rejection should now be withdrawn.

Response to Official Action of January 11, 2007

CONCLUSION

Taking into account the arguments and amendments above, the Applicants respectfully submit respectfully that this application is now in condition for allowance. Early notification of such and passage of this application to issue is earnestly requested.

Respectfully submitted,

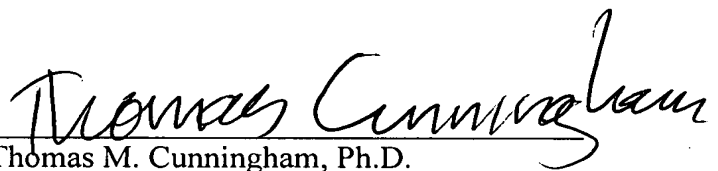
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